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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Yoshihiro TSUCHIYA et al.

Group Art Unit: 2653

Application No.: 09/769,760

Examiner: G. Letscher

Filed: January 26, 2001

Docket No.: 108337

For: MAGNETIC TRANSDUCER, THIN FILM MAGNETIC HEAD, METHOD OF MANUFACTURING MAGNETIC TRANSDUCER AND METHOD OF MANUFACTURING THIN FILM MAGNETIC HEAD

REQUEST FOR RECONSIDERATION

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

In reply to the Office Action mailed March 4, 2003 for the above-identified application, reconsideration is respectfully requested in view of the following remarks.

Claims 28-34, 47 and 51-55 are pending. Claims 34, 52-53 and 55 are withdrawn from consideration.

I. Rejection Under 35 U.S.C. §102

Claims 28-29, 31-33, 47, 51 and 54 stand rejected under 35 U.S.C. §102(e) as being anticipated by Pinarbarsi (U.S. Patent No. 6,268,985). The rejection is respectfully traversed.

In particular, Pinarbarsi does not disclose or suggest a magnetic transducer including at least an interlayer formed in a layer which is at least either a soft magnetic layer or a ferromagnetic layer, the interlayer having magnetism and having higher electrical resistance than the electrical resistance of at least a part of the layer in which the interlayer is formed, as recited in independent claim 28, and similarly recited in independent claims 47, 51 and 54.

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Pinarbarsi discloses that the interlayer 224 is formed between the ferromagnetic layer 212 and the anti-ferromagnetic layer 218, that is, the interlayer is formed outside the ferromagnetic layer, not within the ferromagnetic layer. See Figs. 12 and 13 and col. 6, lines 13-21.

As such, Pinarbarsi does not disclose or suggest the interlayer is formed in a layer which is at least either the soft magnetic layer or the ferromagnetic layer.

Furthermore, although Pinarbarsi discloses that the ferromagnetic layer is made of CoFe and the interlayer is made of NiFe (see Figs 12 and 13), there is no teaching, disclosure or suggestion regarding their electrical resistivity. Incidentally, the electrical resistivity of Fe, Ni and Co are $9.71 \times 10^{-6} \Omega \text{ cm}$, $6.84 \times 10^{-6} \Omega \text{ cm}$ and $6.24 \times 10^{-6} \Omega \text{ cm}$, respectively, and the electrical resistivity of the interlayer and the ferromagnetic layer varies depending on the composition. However, Pinarbarsi is silent as to which electrical resistivity is higher between the interlayer and the ferromagnetic layer.

Stated differently, Pinarbarsi does not disclose or suggest the interlayer has higher electrical resistivity than a part of the layer in which the interlayer is formed.

Accordingly, independent claims 28, 47, 51 and 54 define patentable subject matter. Claims 29 and 31-33 depend from the respective independent claims, and therefore also define patentable subject matter. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(e) is respectfully requested.

II. Rejection Under 35 U.S.C. §103

Claim 30 stands rejected under 35 U.S.C. §103(a) over Pinarbarsi in view of Fukuzawa (U.S. Patent No. 6,338,899). The rejection is respectfully traversed.

As discussed above, Pinarbarsi does not disclose or suggest the features of independent claim 28.

Fukuzawa does not compensate for the above-noted deficiencies of Pinarbarsi.

Fukuzawa merely discloses that it is desirable to interpose a nonmetallic element such as oxygen, nitrogen or the like between the ferromagnetic layer B and the antiferromagnetic layer 143 or between the ferromagnetic layer B and the longitudinal bias film of the antiferromagnetic film, for producing large resistance change. See col. 43, line 59 to col. 44, line 8.

However, Fukuzawa does not disclose or suggest the interlayer is formed in a layer which is at least either the soft magnetic layer or the ferromagnetic layer. Consequently, the combination of Pinarbarsi and Fukuzawa merely discloses a technique that the interlayer including oxygen, nitrogen and the like is provided between the ferromagnetic layer and the antiferromagnetic layer.

Because claim 30 depends from independent claim 28, the claim also defines patentable subject matter. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

III. Conclusion

In view of the foregoing amendments and remarks, this application is in condition for allowance. Favorable reconsideration, prompt allowance of claims 28-34, 47 and 51-55 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the number listed below.

Respectfully submitted,


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